Opportunities for Industrial Energy Efficiency Collaboration

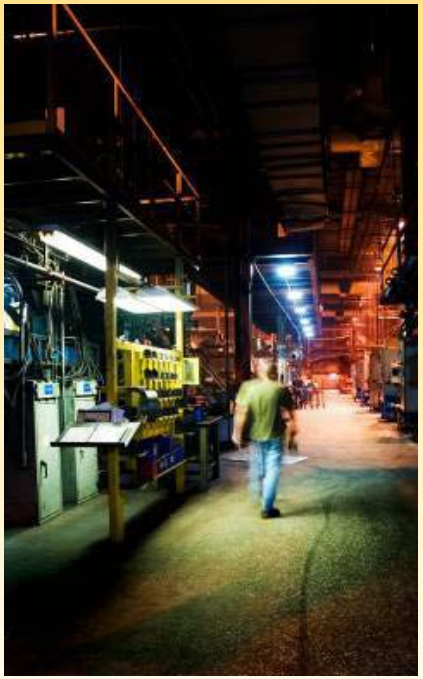
Minnesota Technical Assistance Program

UNIVERSITY OF MINNESOTA

Driven to Discover℠

MnTAP Overview

- Funded by the state (MPCA) since 1984
- Located at the University of Minnesota
- 12 staff, with backgrounds in engineering and science
- Focus on:
  - Pollution prevention
  - Energy efficiency
  - Water conservation
  - Materials efficiency
  - Cost savings for business!



Process Energy Efficiency Assistance

- Compressed air system audits, including limited leak detection and data logging
- Steam system optimization, including limited steam trap assessments
- Motors, fans, and pumps
- Process heat
- Process refrigeration

MnTAP Industry Focus Areas

- Fiberglass
- Food processing
- Healthcare
- Hospitality
- Medical device manufacturing
- Metal casting
- Metal fabrication
- Metal finishing
- Mining
- Powder coating
- POTWs
- Printing
- Pulp and paper

MnTAP Services

- Telephone assistance
- Site visits
- Intern program
- Materials exchange
- Internal team facilitation
- Demonstrations and pilots
- Web site resources
- Seminars and workshops

DOE-ITP Save Energy Now

- Trainings and assessments
  - Compressed air (April – August)
  - Steam systems (July – September)
  - Fans and motors (October – December)
- Technology demonstrations
- Plant certification (ISO 50001)
- Partners: Utilities, Center for Energy and Environment (CEE), ISU-IAC

This project is funded through the MN Dept of Commerce with ARRA funds

Lean Manufacturing and Energy Efficiency

- Value stream mapping integrating energy and environmental opportunities
- Lean and energy project with Enterprise Minnesota and CEE
- Case study: Valley Design
  - Repaired and installed insulation on steam and condensate lines
  - Changed metal halide and T12 lighting to T8
  - Conserved 200,300 kWh, 2,800 therms, and $21,480
  - Evaluating covers for heated tanks, reprogramming oven door closure, compressed air leak repair, and NEMA premium motors

Facility Site Assessments

- Assessment approach (with MERC)
  - Conduct data logging, leak detection
  - Identify conservation opportunities
  - Cost analysis
- Results to date:
  - Team Industries (2 facilities)
    - Waste heat recovery and insulation on equipment
    - Projected conservation of 46,000 therms and $23,400
  - Skyline Displays (evaluating)
    - Reuse cure oven exhaust air
    - Optimize spray booth air flow
    - Move light curtain further upstream

Small Business Assistance Pilots

- Printing sector: non-heatset subsector
  - Partner with utilities and Printing Industry of MN
  - Opportunities:
    - Electrical: 3% compressed air; 7% motors
- Metal fabrication: machine shop subsector
  - Partner with utilities and MN Precision Mfg Assn
  - Opportunities: 1-9% compressed air; 1-4% motors
- Approach (electric focused):
  - In-depth audits at 5 mid-sized facilities
  - Abbreviated audits at 10 facilities
  - Implementation assistance

Energy Efficiency Teams

- Staff engagement through cross functional teams
- Investigate multiple issues: energy, water, materials
- Provide technical assistance as needed
- Case studies:
  - Fairview
  - Graco
  - Pepsi

Fairview Hospital Green Team

- Team composition: vice president, managers, directors, nurses, environmental services
- Corporate goals for energy, water, waste, and GHG; set baseline for metrics
- Activities:
  - OR energy audit
  - Materials reduction

Graco Green Team

- Team composition: engineering, purchasing, EHS, communications
- Activities:
  - Compressed air leak study
  - Condition high pressure intake air
- Results:
  - 84,700 kWh
  - $28,533

Pepsi Energy Team

- Team composition: plant and production manager, quality, maintenance, line workers
- Corporate goals: 0.4 kWh/case; 2.2 million kWh from current energy use
- Activities (procedural and existing equip)
  - Blower fan shut off on airveyor
  - Plant shut down procedures
  - Air shut down for certain equipment
  - Chiller shut off on non-carb runs

Student Intern Program

- Primary focus is on industrial process energy use
- Past results (since 2003):
  - 13.8 million kWh; 44.4 million kWh projected
  - 570,265 therms; 5.1 million therms projected
  - $1 million in savings; $3.5 million projected

Student Intern Program

- 2010 Xcel Energy funded E2 projects:
  - 3M: lab fume hoods
  - Malt O Meal: steam, cooling water, compressed air
  - Consolidated Precision Products: fans, lighting, melters
  - Conagra: process equipment
  - Met Council Env Services: coop in fall 2010
- Timing for 2011 – applications due Feb 1, 2011
  - Partnered utility projects, ie gas and electric collaborate
  - Use reps to promote; scope projects early
  - 8 projects maximum

Contacts

- Krysta Larson, Intern Coordinator, Communications, and Asst Director

  612-624-4697, kjlarson@umn.edu
- Karl DeWahl, Senior Engineer

  612-624-4645, dewah001@umn.edu
- Cindy McComas, Program Director

  612-624-4678, mccom003@umn.edu